

Title (en)

INPUT/OUTPUT SYSTEMS AND METHODS FOR SUPERCONDUCTING DEVICES

Title (de)

EINGANGS-/AUSGANGSSYSTEME UND VERFAHREN FÜR SUPRALEITENDE VORRICHTUNGEN

Title (fr)

SYSTÈMES D'ENTRÉE/SORTIE ET PROCÉDÉS POUR DISPOSITIFS SUPRACONDUCTEURS

Publication

**EP 3983962 A4 20230531 (EN)**

Application

**EP 20823454 A 20200611**

Priority

- US 201962860098 P 20190611
- US 2020037222 W 20200611

Abstract (en)

[origin: WO2020252157A1] A quantum processor comprises a plurality of tiles, the plurality of tiles arranged in a first grid, and where a first tile of the plurality of tiles comprises a number of qubits (e.g., superconducting qubits). The quantum processor further comprises a shift register comprising at least one shift register stage communicatively coupled to a frequency-multiplexed resonant (FMR) readout, a qubit readout device, a plurality of digital-to-analog converter (DAC) buffer stages, and a plurality of shift-register-loadable DACs arranged in a second grid. The quantum processor may further include a transmission line comprising at least one transmission line inductance, a superconducting resonator, and a coupling capacitance that communicatively couples the superconducting resonator to the transmission line. A digital processor may program at least one of the plurality of shift-register-loadable DACs. Programming the first tile may be performed in parallel with programming a second tile of the plurality of tiles.

IPC 8 full level

**G06N 10/00** (2022.01); **B82Y 10/00** (2011.01); **G06N 10/40** (2022.01)

CPC (source: CN EP US)

**G06N 10/00** (2019.01 - CN); **G06N 10/40** (2022.01 - EP US); **H10N 60/12** (2023.02 - US); **H10N 60/805** (2023.02 - US); **B82Y 10/00** (2013.01 - CN); **G06N 10/80** (2022.01 - EP)

Citation (search report)

- [I] WO 2017192733 A2 20171109 - D WAVE SYSTEMS INC [CA], et al
- [I] US 2018145631 A1 20180524 - BERKLEY ANDREW J [CA], et al
- See also references of WO 2020252157A1

Designated contracting state (EPC)

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DOCDB simple family (publication)

**WO 2020252157 A1 20201217**; CN 113906449 A 20220107; EP 3983962 A1 20220420; EP 3983962 A4 20230531; JP 2022536594 A 20220818; US 12033033 B2 20240709; US 2022207404 A1 20220630

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**US 2020037222 W 20200611**; CN 202080040591 A 20200611; EP 20823454 A 20200611; JP 2021565846 A 20200611; US 202017607278 A 20200611